IN THE CLAIMS

Please amend the claims as follows:

Claims 1-105 (Canceled).

Claim 106 (Previously Presented): A light source unit that generates light with a single wavelength, said light source unit comprising:

a light generating portion which generates a single wavelength laser light having a wavelength of around 1.5μm;

a fiber group made up of a plurality of optical fibers arranged in parallel on an output side of said light generating portion;

a light amount control unit which controls light amount emitted from said fiber group by individually turning on/off light output from each optical fiber of said fiber group; and

a wavelength conversion portion which generates one of an eighth-harmonic wave and a tenth-harmonic wave of said single wavelength laser light having said wavelength of around 1.5μm from said fiber group.

Claim 107 (Previously Presented): The light source unit according to Claim 106, wherein at least an output end of each of said plurality of optical fibers making up said fiber group is bundled so as to structure a bundle-fiber.

Claim 108 (Previously Presented): The light source unit according to Claim 106, wherein

at least one stage of a fiber amplifier that can perform optical amplification is arranged on a part of each optical path, which is structured including said each optical fiber, and

said light amount control unit performs on/off operation of said light output from said each optical fiber by switching intensity of pumped light from a pumping light source of said fiber amplifier.

Claim 109 (Previously Presented): The light source unit according to Claim 108, wherein said light amount control unit performs said switching of pumped light intensity by selectively setting intensity of pumped light from said pumping light source to one of a predetermined level and a zero level.

Claim 110 (Previously Presented): The light source unit according to Claim 109, wherein said light amount control unit selectively sets said intensity of pumped light from said pumping light source to one of said predetermined level and said zero level by performing on/off operation on said pumping light source.

Claim 111 (Previously Presented): The light source unit according to Claim 108, wherein said light amount control unit performs said intensity switching of said pumped light by selectively setting said pumped light intensity from said pumping light source to one of a predetermined first level and a second level smaller than said first level.

Claim 112 (Previously Presented): The light source unit according to Claim 108, wherein

said each optical path has a plurality of said fiber amplifiers arranged, and

said light amount control unit performs on/off operation of said light output from said each optical fiber by switching intensity of pumped light from a pumping light source of a fiber amplifier arranged at a final stage.

Claim 113 (Previously Presented): The light source unit according to Claim 112, wherein a mode field diameter of said fiber amplifier arranged most downstream directly before said light output is large, when compared with other fiber amplifiers arranged before said fiber amplifier.

Claim 114 (Previously Presented): The light source unit according to Claim 106, said light source further comprising:

a memory unit which has an output intensity map corresponding to an on/off state of light output from said each optical fiber stored in advance, and

said light amount control unit individually turns on/off light output from said each optical fiber based on said output intensity map and a predetermined set light amount.

Claim 115 (Previously Presented): The light source unit according to Claim 114, wherein said output intensity map is made based on dispersion of light output from said each optical fiber measured in advance.

Claim 116 (Currently Amended): The light source unit according to Claim 114, ~~said light source further comprising:~~ wherein

~~a wavelength conversion portion which converts a wavelength of said light output from said each optical fiber; and~~

said output intensity map is made with ~~further~~ consideration on light output dispersion due to dispersion in wavelength conversion efficiency, which corresponds to light output from said each optical fiber measured in advance.

Claim 117 (Currently Amended): The light source unit according to ~~Claim 116~~ Claim 106, wherein

said light generating portion ~~generates a single wavelength laser beam within the range of infrared to visible region, and~~

~~said wavelength conversion portion emits ultraviolet light which is a harmonic wave of said single wavelength laser beam~~ includes a light source and an optical modulator of which at least one is connected to said light amount control unit, and pulse-emits said single wavelength laser light by at least one of the light source and the optical modulator.

Claim 118 (Currently Amended): The light source unit according to Claim 117, ~~wherein~~

~~said light generating portion generates a single wavelength laser beam that has a wavelength of around 1.5μm, and~~

~~said wavelength conversion portion generates one of an eighth harmonic wave and a tenth harmonic wave of said single wavelength laser beam having said wavelength of around 1.5μm~~ further comprising:

an optical unit which suppresses broadening of a wavelength width of light between said light source and said wavelength conversion portion.

Claims 119-121 (Canceled).

Claim 122 (Previously Presented): The light source unit according to Claim 106, wherein

said light generating portion includes a light source which generates light having a single wavelength and an optical modulator which converts and emits said light from said light source into a pulse light having a predetermined frequency, and

said light amount control unit further controls at least one of a frequency and a peak power of said pulse light emitted from said optical modulator.

Claim 123 (Previously Presented): The light source unit according to Claim 106, said light source unit further comprising a delay portion, which individually delays light output from said plurality of optical fibers respectively so as to stagger said light output temporally.

Claim 124 (Previously Presented): The light source unit according to Claim 106, wherein

said light generating portion has a laser light source to oscillate a laser beam, and said light source unit further comprises:

a beam monitor mechanism which monitors the optical properties of said laser beam related to wavelength stabilizing to maintain a center wavelength of said laser beam to a predetermined set wavelength; and

a wavelength calibration control unit which performs wavelength calibration based on temperature dependence data of detection reference wavelength of said beam monitor mechanism.

Claim 125 (Previously Presented): The light source unit according to Claim 124, said light source further comprising:

a polarization adjustment unit which orderly arranges a polarized state of a plurality of light beams with the same wavelength having passed through said plurality of optical fibers; and

a polarized direction conversion unit which converts all light beams having passed through said plurality of optical fibers into a plurality of linearly polarized light beams that have the same polarized direction.

Claim 126 (Previously Presented): The light source unit according to Claim 125, wherein

at least a fiber amplifier that can perform optical amplification is arranged on a part of each optical path, which is structured including said each optical fiber, and

said fiber amplifier has an optical fiber, which main material is one of phosphate glass and bismuth oxide glass doped with a rare-earth element, serving as an optical waveguide member.

Claim 127 (Previously Presented): A light source unit that generates light with a single wavelength, said light source unit comprising:

a light generating portion that has a single wavelength laser light source and an optical modulator to generate a single wavelength pulse light having a wavelength of around 1.5μm;

a light amplifying portion which includes at least one fiber amplifier to amplify said pulse light generated by said light generating portion;

a light amount control unit which controls light amount emitted from said light amplifying portion by controlling a frequency of said pulse light; and

a wavelength conversion portion which generates one of an eighth-harmonic wave and a tenth-harmonic wave of said pulse light having said wavelength of around 1.5μm.

Claim 128 (Previously Presented): The light source unit according to Claim 127, said light source unit further comprising:

a memory unit which has an output intensity map corresponding to a frequency of said pulse light entering said light amplifying portion stored, and

said light amount control unit controls said frequency of said pulse light emitted from said optical modulator based on said output intensity map and a predetermined set light amount.

Claim 129 (Previously Presented): The light source unit according to Claim 127, wherein said light amount control unit further controls a peak power of said pulse light emitted from said optical modulator.

Claim 130 (Previously Presented): The light source unit according to Claim 127, wherein

said optical modulator is an electrooptical modulator, and

said light amount control unit controls said frequency of said pulse light by controlling a frequency of voltage pulse impressed on said optical modulator.

Claim 131 (Previously Presented): The light source unit according to Claim 127, wherein

said light amplifying portion is arranged in plural and in parallel, and

an output end of each said light amplifying portion is each made up of an optical fiber.

Claim 132 (Previously Presented): The light source unit according to Claim 131, wherein a plurality of said optical fibers that respectively make up said light amplifying portion in plural are bundled so as to structure a bundle-fiber.

Claims 133-135 (Canceled).

Claim 136 (Previously Presented): The light source unit according to Claim 127, wherein

said light generating portion has a laser light source serving as said light source that oscillates a laser beam, and said light source unit further comprises:

a beam monitor mechanism which monitors the optical properties of said laser beam related to wavelength stabilizing to maintain a center wavelength of said laser beam to a predetermined set wavelength; and

a wavelength calibration control unit which performs wavelength calibration based on temperature dependence data of detection reference wavelength of said beam monitor mechanism.

Claim 137 (Previously Presented): The light source unit according to Claim 136, wherein

said light amplifying portion is arranged in plural and in parallel, and said light source unit further comprises:

a polarization adjustment unit which orderly arranges a polarized state of a plurality of light beams with the same wavelength having passed through said plurality of optical fibers that respectively structure said plurality of light amplifying portions; and

a polarized direction conversion unit which converts all light beams having passed through said plurality of optical fibers into a plurality of linearly polarized light beams that have the same polarized direction.

Claim 138 (Previously Presented): The light source unit according to Claim 137, wherein said fiber amplifier has an optical fiber, which main material is one of phosphate glass and bismuth oxide glass doped with a rare-earth element, serving as an optical waveguide member.

Claim 139 (Previously Presented): A light source unit that generates light with a single wavelength, said light source unit comprising:

a light generating portion that has a single wavelength laser light source and an optical modulator to generate a single wavelength pulse light having a wavelength of around 1.5μm;

a light amplifying portion which includes at least one fiber amplifier to amplify said pulse light generated by said light generating portion;

a light amount control unit which controls light amount emitted from said light amplifying portion by controlling a peak power of said pulse light; and

a wavelength conversion portion which generates one of an eighth-harmonic wave and a tenth-harmonic wave of said pulse light having said wavelength of around 1.5μm.

Claim 140 (Previously Presented): The light source unit according to Claim 139, said light source unit further comprising:

a memory unit which has an output intensity map corresponding to intensity of said pulse light entering said light amplifying portion stored, and

said light amount control unit controls said peak power of said pulse light emitted from said optical modulator based on said output intensity map and a predetermined set light amount.

Claim 141 (Previously Presented): The light source unit according to Claim 139, wherein

said optical modulator is an electrooptical modulator, and

said light amount control unit controls said peak power of said pulse light by controlling a peak level of voltage pulse impressed on said optical modulator.

Claim 142 (Previously Presented): The light source unit according to Claim 139, wherein

said light amplifying portion is arranged in plural and in parallel, and

an output end of each said light amplifying portion is each made up of an optical fiber.

Claim 143 (Previously Presented): The light source unit according to Claim 142, wherein a plurality of said optical fibers that respectively make up said light amplifying portion in plural are bundled so as to structure a bundle-fiber.

Claim 144 (Previously Presented): The light source unit according to Claim 142, said light source unit further comprising a delay portion, which individually delays light output from said plurality of light amplifying portions respectively so as to stagger said light output temporally.

Claims 145-147 (Canceled).

Claim 148 (Previously Presented): The light source unit according to Claim 139, wherein

said light generating portion has a laser light source serving as said light source that oscillates a laser beam, and said light source unit further comprises:

a beam monitor mechanism which monitors the optical properties of said laser beam related to wavelength stabilizing to maintain a center wavelength of said laser beam to a predetermined set wavelength; and

a wavelength calibration control unit which performs wavelength calibration based on temperature dependence data of detection reference wavelength of said beam monitor mechanism.

Claim 149 (Previously Presented): The light source unit according to Claim 148, wherein

said light amplifying portion is arranged in plural and in parallel, and said light source unit further comprises:

a polarization adjustment unit which orderly arranges a polarized state of a plurality of light beams with the same wavelength having passed through said plurality of optical fibers that respectively structure said plurality of light amplifying portions; and

a polarized direction conversion unit which converts all light beams having passed through said plurality of optical fibers into a plurality of linearly polarized light beams that have the same polarized direction.

Claim 150 (Previously Presented): The light source unit according to Claim 149, wherein said fiber amplifier has an optical fiber, which main material is one of phosphate glass and bismuth oxide glass doped with a rare-earth element, serving as an optical waveguide member.

Claim 151 (Previously Presented): A light source unit, said unit comprising:

a laser light source which oscillates a laser beam;

a fiber amplifying portion which amplifies said laser beam from said laser light source;

a beam monitor mechanism which monitors an optical property of said laser beam related to wavelength stabilizing to maintain a center wavelength of said laser beam to a predetermined set wavelength; and

a first control unit which performs wavelength calibration based on temperature dependence data of detection reference wavelength of said beam monitor mechanism.

Claim 152 (Previously Presented): The light source unit according to Claim 151, said light source unit further comprising:

an absolute wavelength provision source which provides an absolute wavelength close to said set wavelength, and

said first control unit performs an absolute wavelength calibration to make said detection reference wavelength of said beam monitor mechanism almost coincide with said absolute wavelength provided by said absolute wavelength provision source, and also a set wavelength calibration to make said detection reference wavelength coincide with said set wavelength based on said temperature dependence data.

Claim 153 (Previously Presented): The light source unit according to Claim 152, wherein

said beam monitor mechanism includes a Fabry-Perot etalon,

said temperature dependence data includes data based on measurement results on temperature dependence of a resonance wavelength of said Fabry-Perot etalon, and

said first control unit performs said absolute wavelength calibration and said set wavelength calibration on said detection reference wavelength by controlling a temperature of said Fabry-Perot etalon structuring said beam monitor unit.

Claim 154 (Previously Presented): The light source unit according to Claim 152, wherein

said temperature dependence data further includes data on temperature dependence of a center wavelength of said laser beam oscillated from said laser light source, and

said first control unit performs wavelength control of said laser light source together, when performing said absolute wavelength calibration.

Claim 155 (Previously Presented): The light source unit according to Claim 152, wherein

said absolute wavelength provision source is an absorption cell on which said laser beam is incident, and

said first control unit maximizes absorption of an absorption line closest to said set wavelength of said absorption cell, as well as maximize transmittance of said Fabry-Perot etalon, when performing said absolute wavelength calibration.

Claim 156 (Previously Presented): The light source unit according to Claim 151, further comprising:

a wavelength conversion portion which includes a nonlinear optical crystal to convert a wavelength of said laser beam from said fiber amplifying portion.

Claim 157 (Previously Presented): The light source unit according to Claim 156, wherein

said laser beam has a single wavelength of around 1.5μm, and said wavelength conversion portion generates one of an eighth-harmonic wave and a tenth-harmonic wave of said laser beam having said wavelength of around 1.5μm.

Claim 158 (Previously Presented): The light source unit according to Claim 151, said light source unit further comprising a second control unit which feedback controls a wavelength of said laser beam from said laser light source after said set wavelength calibration is completed, based on monitoring results of said beam monitor mechanism which has completed said set wavelength calibration.

Claim 159 (Previously Presented): The light source unit according to Claim 151, said light source unit further comprising:

a plurality of light amplifying portions arranged in parallel that respectively include fiber amplifiers on the output side of said laser light source;

a polarization adjustment unit which orderly arranges a polarized state of a plurality of light beams with the same wavelength having passed through said plurality of optical fibers that respectively structure said plurality of light amplifying portions; and

a polarized direction conversion unit which converts all light beams having passed through said plurality of optical fibers into a plurality of linearly polarized light beams that have the same polarized direction.

Claim 160 (Previously Presented): The light source unit according to Claim 159, wherein said fiber amplifier has an optical fiber, which main material is one of phosphate glass and bismuth oxide glass doped with a rare-earth element, serving as an optical waveguide member.

Claim 161 (Previously Presented): A light source unit, said unit comprising:

a plurality of optical fibers;

a polarization adjustment unit which orderly arranges a polarized state of a plurality of light beams with the same wavelength having passed through said plurality of optical fibers; and

a polarized direction conversion unit which converts all light beams having passed through said plurality of optical fibers into a plurality of linearly polarized light beams that have the same polarized direction.

Claim 162 (Previously Presented): The light source unit according to Claim 161, wherein

said polarization adjustment unit polarizes respectively said plurality of light beams having passed through each of said optical fibers into a state nearly circular, and

said polarized direction conversion unit has a quarter-wave plate.

Claim 163 (Previously Presented): The light source unit according to Claim 162, wherein

said optical fibers have an almost cylindrical-symmetric structure; and

said polarization adjustment unit polarizes respectively said plurality of light beams incident on each of said optical fibers into a state nearly circular.

Claim 164 (Previously Presented): The light source unit according to Claim 161, wherein

said polarization adjustment unit polarizes respectively said plurality of light beams having passed through each of said optical fibers into an elliptic state almost identical, and

said polarized direction conversion unit has a half-wave plate that rotates a plane of polarization and a quarter-wave plate which is optically connected in series to said half-wave plate.

Claim 165 (Previously Presented): The light source unit according to Claim 161, wherein said plurality of optical fibers respectively are optical fibers making up an optical fiber amplifier, which amplifies a plurality of light beams subject to amplifying incident on said plurality of optical fibers, and waveguide said beams subject to amplifying.

Claim 166 (Previously Presented): The light source unit according to Claim 162, wherein said optical fiber is made mainly of one of phosphate glass and bismuth oxide glass doped with a rare-earth element.

Claim 167 (Previously Presented): The light source unit according to Claim 161, wherein said plurality of light beams incident on said plurality of optical fibers are respectively a pulse train.

Claim 168 (Previously Presented): The light source unit according to Claim 161, wherein said plurality of light beams incident on said plurality of optical fibers are respectively a light beam that has been amplified by at least one stage of an optical fiber amplifier before entering said plurality of optical fibers.

Claim 169 (Previously Presented): The light source unit according to Claim 161, wherein said polarization adjustment unit performs polarization adjustment by controlling optical properties of optical components arranged on the optical path further upstream of said plurality of optical fibers.

Claim 170 (Previously Presented): The light source unit according to Claim 161, wherein said plurality of optical fibers are bundled almost in parallel.

Claim 171 (Currently Amended): The light source unit according to Claim 161, said light source unit further comprising a wavelength conversion ~~unit~~ portion which performs wavelength conversion on light beams emitted from said polarized direction conversion unit by said light beams passing through at least one nonlinear optical crystal.

Claim 172 (Currently Amended): The light source unit according to Claim 171, wherein

light emitted from said plurality of optical fibers ~~is light which wavelength is in one of~~ has a single wavelength in a range from an infrared region to ~~and~~ a visible region, and

light emitted from said wavelength conversion ~~unit~~ portion ~~is light which~~ has a wavelength ~~is~~ in an ultraviolet region.

Claim 173 (Currently Amended): The light source unit according to Claim 172, wherein

said light emitted from said plurality of optical fibers has a wavelength of around 1547nm, and

said light emitted from said wavelength conversion ~~unit~~ portion has a wavelength of around 193.4nm.

Claim 174 (Previously Presented): A light source unit, said unit comprising:

a light amplifying unit which includes an optical waveguiding member mainly made of any one of phosphate glass and bismuth oxide glass doped with a rare-earth element, and amplifies incident light; and

a wavelength conversion unit which converts a wavelength of light emitted from said light amplifying unit.

Claim 175 (Previously Presented): The light source unit according to Claim 174, wherein said optical waveguiding member is an optical fiber which has a core to waveguide light, and a cladding arranged in the periphery of said core.

Claim 176 (Previously Presented): The light source unit according to Claim 175, wherein said optical fiber is arranged linearly.

Claim 177 (Previously Presented): The light source unit according to Claim 175, wherein said light amplifying unit further includes at least a container to house said optical fiber.

Claim 178 (Previously Presented): The light source unit according to Claim 174, wherein said wavelength conversion unit includes at least one nonlinear optical crystal to perform wavelength conversion.

Claim 179 (Previously Presented): A wavelength stabilizing control method to maintain a center wavelength of a laser beam oscillated from a laser light source to a predetermined set wavelength, said wavelength stabilizing control method including:

a first step of measuring in advance temperature dependence of a detection reference wavelength of a wavelength detection unit used to detect a wavelength of said laser beam;

a second step of performing an absolute wavelength calibration to make said detection reference wavelength of said wavelength detection unit almost coincide with an absolute

wavelength provided from an absolute wavelength provision source, said absolute wavelength close to said set wavelength;

a third step of setting said detection reference wavelength of said wavelength detection unit to said set wavelength, based on said temperature dependence obtained in said first step; and

a fourth step of controlling a wavelength of said laser beam from said laser light source, based on a detection result of said wavelength detection unit which said detection reference wavelength is set to said set wavelength in said third step.

Claim 180 (Previously Presented): The wavelength stabilizing control method according to Claim 179, wherein

said wavelength detection unit is a Fabry-Perot etalon, and

in said first step, temperature dependence of a resonance wavelength of said wavelength detection unit is measured;

in said second step, said resonance wavelength is made to almost coincide said absolute wavelength by controlling temperature of said wavelength detection unit; and

in said third step, said resonance wavelength is set as said set wavelength by controlling temperature of said wavelength detection unit.

Claim 181 (Previously Presented): The wavelength stabilizing control method according to Claim 180, wherein

said absolute wavelength provision source is an absorption cell on which said laser beam is incident, and

in said second step, absorption of an absorption line closest to said set wavelength of said absorption cell and transmittance of said wavelength detection unit are maximized.

Claim 182 (Previously Presented): The wavelength stabilizing control method according to Claim 179, wherein

in said first step, temperature dependence of said center wavelength of said laser beam is further measured in advance; and

in said second step, a wavelength control of said laser beam is performed together.

Claim 183 (Canceled).

Claim 184 (Previously Presented): The wavelength stabilizing control method according to Claim 182, wherein said wavelength control is performed, by controlling at least one of a temperature and a current supplied to said laser light source.

Claims 185-209 (Canceled).

Claim 210 (Previously Presented): A making method of an exposure apparatus that forms a predetermined pattern on a substrate by irradiating an exposure light on said substrate via an optical system, wherein adjustment of properties in said optical system is performed by using light which wavelength belongs to a predetermined bandwidth including a wavelength of said exposure light, said light generated by a light source unit according to Claim 174.

Claims 211-232 (Canceled).

Claim 233 (New): An apparatus used in a device manufacturing process, comprising:

a light source unit according to Claim 106; and

a main body optically connected to the light source unit to irradiate light generated from the light source unit onto an object.

Claim 234 (New): An apparatus according to Claim 233, wherein

said object includes a substrate having a pattern illuminated with said light from said light source unit.

Claim 235 (New): An apparatus used in a device manufacturing process, comprising:

a light source unit according to Claim 127; and

a main body optically connected to the light source unit to irradiate light generated from the light source unit onto an object.

Claim 236 (New): An apparatus according to Claim 235, wherein

said object includes a substrate having a pattern illuminated with said light from said light source unit.

Claim 237 (New): An apparatus used in a device manufacturing process, comprising:

a light source unit according to Claim 139; and

a main body optically connected to the light source unit to irradiate light generated from the light source unit onto an object.

Claim 238 (New): An apparatus according to Claim 237, wherein

said object includes a substrate having a pattern illuminated with said light from said light source unit.

Claim 239 (New): An apparatus used in a device manufacturing process, comprising:

a light source unit according to Claim 151, wherein said amplified laser beam having a single wavelength in a range from an infrared region to a visible region, and the light source unit including a wavelength conversion portion that generates light having a wavelength in an ultraviolet region with said amplified laser beam; and

a main body optically connected to the light source unit to irradiate the light generated from the light source unit onto an object.

Claim 240 (New): An apparatus according to Claim 239, wherein

said object includes a substrate having a pattern illuminated with said light from said light source unit.

Claim 241 (New): An apparatus used in a device manufacturing process, comprising:

a light source unit according to Claim 161, wherein the same wavelength of said polarized light beams being a single wavelength in a range from an infrared region to a visible region, and the light source unit including a wavelength conversion portion that generates light having a wavelength in an ultraviolet region with said polarized light beams; and

a main body optically connected to the light source unit to irradiate the light generated from the light source unit onto an object.

Claim 242 (New): An apparatus according to Claim 241, wherein

said object includes a substrate having a pattern illuminated with said light from said light source unit.

Claim 243 (New): An apparatus used in a device manufacturing process, comprising:

a light source unit according to Claim 174, wherein said amplified light having a single wavelength in a range from an infrared region to a visible region, and said wavelength conversion unit generating light having a wavelength in an ultraviolet region; and

a main body optically connected to the light source unit to irradiate the light generated from the light source unit onto an object.

Claim 244 (New): An apparatus according to Claim 243, wherein

said object includes a substrate having a pattern illuminated with said light from said light source unit.